

CLAIMS

What is claimed is.

- 1 1. A process comprising:
2 forming an imprinted polymer disposed upon a substrate under conditions to
3 expose a bond pad on the substrate by local flow of the polymer, wherein a recess is
4 formed in the polymer;
5 mating a solder bump with the bond pad; and
6 curing the polymer.
- 1 2. The process of claim 1, further including reflowing the solder bump at a
2 process time selected from before curing the polymer, after curing the polymer, and
3 simultaneously with curing the polymer.
- 1 3. The process of claim 1, following forming an imprinted polymer the process
2 further including filling a solder flux into the recess.
- 1 4. The process of claim 1, following forming an imprinted polymer the process
2 further including filling a solder flux into the recess by a process including pushing
3 the solder flux.
- 1 5. The process of claim 1, wherein forming an imprinted polymer includes
2 forming the imprinted polymer with a convex over-all profile.
- 1 6. The process of claim 1, wherein forming an imprinted polymer includes
2 forming the imprinted polymer with a convex over-all profile, and the process
3 further including:
4 mating a microprocessor with the solder bump.

- 1 7. The process of claim 1, wherein forming an imprinted polymer includes
2 forming the imprinted polymer with a convex over-all profile, and the process
3 further including:
4 mating a microprocessor with the solder bump, wherein mating includes at
5 least partially flattening the convex over-all profile.
- 1 8. The process of claim 1, wherein forming an imprinted polymer includes
2 forming a contoured recess.
- 1 9. The process of claim 1, wherein forming an imprinted polymer includes
2 forming a contoured recess, and wherein mating the solder bump with the bond pad
3 includes mating a complementary-contoured solder bump in the recess.
- 1 10. The process of claim 1, further including mating a microprocessor with the
2 solder bump.
- 1 11. The process of claim 1, wherein the polymer is formed upon the substrate by
2 depositing a prepolymer selected from a resin, an epoxy, and combinations thereof.
- 1 12. The process of claim 1, wherein curing the polymer forms a cured polymer
2 film that includes a film-to-substrate thickness ratio in a range from about one-tenth
3 to about one-half the thickness of the substrate.
- 1 13. The process of claim 1, wherein the polymer is formed upon the substrate by
2 depositing a prepolymer selected from a resin, an epoxy, and combinations thereof,
3 and wherein curing the polymer forms a cured polymer film including a film-to-
4 substrate thickness ratio selected from about one-tenth, one-eighth, one-fifth, one-
5 fourth, one-third, and one-half the thickness of the substrate.

1 14. The process of claim 1, wherein the polymer is a resin that includes a filler
2 selected from silica, ceria, thoria, zirconia and combinations thereof.

1 15. The process of claim 1, wherein the polymer is a resin that includes a filler
2 selected from silica, ceria, thoria, zirconia and combinations thereof, and wherein
3 the filler is selected from a spherical particle, an aspherical particle, a fiber, and
4 combinations thereof.

1 16. The process of claim 1, wherein the polymer is a resin that includes a filler
2 in a concentration range from about 30% to about 90%.

1 17. A process comprising:
2 placing a polymer film over a substrate;
3 imprinting the polymer film under conditions to expose a bond pad on the
4 substrate by local flow of the polymer film, wherein a recess is formed in the
5 polymer film;
6 mating a solder bump with the bond pad; and
7 curing the polymer film.

1 18. The process of claim 17, further including reflowing the solder bump at a
2 process time selected from before curing the polymer film, after curing the polymer
3 film, and simultaneously with curing the polymer film.

1 19. The process of claim 17, following forming an imprinted polymer film the
2 process further including filling a solder flux into the recess.

1 20. The process of claim 17, following forming an imprinted polymer film the
2 process further including filling a solder flux into the recess by a process including
3 pushing the solder flux.

- 1 21. The process of claim 17, wherein forming an imprinted polymer film
2 includes forming a contoured recess.
- 1 22. The process of claim 17, wherein forming an imprinted polymer includes
2 forming a contoured recess, and wherein mating the solder bump with the bond pad
3 includes mating a complementary-contoured solder bump in the recess.
- 1 23. The process of claim 17, further including mating a microprocessor with the
2 solder bump.
- 1 24. The process of claim 17, wherein placing the polymer film upon the
2 substrate includes placing a polymer film selected from a resin, an epoxy, and
3 combinations thereof.
- 1 25. The process of claim 17, wherein curing the polymer film forms a cured
2 polymer film that includes a film-to-substrate thickness ratio in a range from about
3 one-tenth to about one-half the thickness of the substrate.
- 1 26. The process of claim 17, wherein placing the polymer film upon the
2 substrate includes placing a polymer film selected from a resin, an epoxy, and
3 combinations thereof, and wherein curing the polymer film forms a cured polymer
4 film including a film-to-substrate thickness ratio selected from about one-tenth, one-
5 eighth, one-fifth, one-fourth, one-third, and one-half the thickness of the substrate.
- 1 27. A structure comprising:
2 a substrate;
3 a pressed, cured polymer film disposed above the substrate; and
4 an electrical bump disposed in the recess.

1 28. The structure of claim 27 further including:
2 an electronic device electrically coupled to the structure through the
3 electrical bump.

1 29. The structure of claim 27, further including:
2 an electronic device electrically coupled to the structure, wherein the
3 structure is disposed in one of a computer, a wireless communicator, a
4 hand-held device, an automobile, a locomotive, an aircraft, a watercraft, and a
5 spacecraft.